

In the name of God



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## **Treatment of Anal Fissure - Revisited.**

Gupta P J.

Consulting Proctologist, Gupta Nursing Home, Laxminagar, Nagpur- 440022, India.

Correspondence: Pravin J.Gupta, Consulting Proctologist, Gupta Nursing Home, D/9, Laxminagar, Nagpur- 440022, India. Email: drpjg@ yahoo.co.in

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### **Abstract:**

Fissure in ano is a troubling and painful condition that affects a great majority of the population world over. The nature and anatomy of the fissure in ano is quite clear, and much is known about the various predisposing and contributing factors that lead to initiation and progression of the disease. The preferred method of treating them, one that results in optimal clinical results and the least pain and inconvenience for the patient, however, has been open to debate.

This study outlines a brief account of the present scenario of different techniques available for the treatment of chronic anal fissure.

Considering all aspects, it can be concluded that medical manipulation of the internal sphincter should be a first-line treatment in anal fissure. When this fails or fissures recur, lateral subcutaneous internal sphincterotomy should be the preferred options for the treatment of chronic fissure in ano. Nevertheless, all the options should be presented to the patient with complete information about the method, cure rates, complications, and recurrence of the disease.

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Key Words: Fissure-in-Ano, Sphincterotomy, Recurrence, Anal spasm.

## Introduction:

Anal fissure is the most common cause of severe anal pain. It is equally one of the most common reasons of bleeding per anus in infants and young children. The pain of anal ulcer is intolerable and always disproportionate to the severity of the physical lesion. It may be so severe that patients may avoid defecation for days together until it becomes inevitable. This leads to hardening of the stools, which further tear the anoderm during defecation, setting a vicious cycle. The fissures can be classified into 1] Acute or superficial and 2] Chronic fissure in ano.

**Predisposing Factors** - It has been proved that constipation is the primary and sole cause of initiation of a fissure<sup>1</sup>. Passage of hard stool, irregularity of diet, consumption of spicy and pungent food, faulty bowel habits, and lack of local hygiene can contribute for initiation of the pathology. In females, the ailment is usually triggered during pregnancy and following childbirth. It occurs as a superficial split in the anoderm that may heal by itself or may progress to a chronic fissure.

**Pathophysiology**- The anoderm is more adherent to the underlying tissue in the posterior midline. The sphincter fibers form Y-shaped decussation in the posterior midline that is anchored to the mucosa. Blood supply to the anoderm at the posterior midline is significantly lower. The reduced blood supply to the lesion is indicated by the absence of granulation tissue at the base of the fissure and a very slow growth of the anoderm even when the traditional conservative treatment eases the trauma due to hard faeces.

A well-developed idiopathic anal fissure rests directly over the internal sphincter and the circular fibers of this sphincter are visible on the floor of the fissure on naked eye inspection. The internal sphincter undergoes a perpetual state of spasm due to irritation and hypertrophies.

**Treatment of Superficial fissures** - It has long been recognized that superficial fissures can be cured conservatively<sup>2</sup>. The following methods are usually advocated for such type of simple fissures.

1. Warm water sitz bath with or without adding boric powder, povidone iodine solution, or potassium permanganate in the water. This treatment soothes the pain and relaxes the spasm of the internal sphincter for some time<sup>3</sup>

2. Adequate analgesia is necessary to break the vicious cycle of pain viz. avoidance of defecation for prolonged periods leading to hard stools resulting in further tearing of the anoderm and thereby inviting increased pain. A suitable dose of analgesic consumed half an hour before going for defecation gives a good amount of post defecation pain relief.

3. Stool softening is essential as soft and formed stools negotiate the rectum and anal canal in non-traumatic physiologic maneuver. Plenty of oral fluids also help in keeping the stools soft.

4. High-fiber-diet and bulk-forming agents such as Isaphgula; green leafy vegetables and fibrous fruits go a long way in increasing the bulk of stool leading to a smooth and swift act of defecation.

5. Reassurance and encouragement for not resisting the urge for defecation help prevent hard stools. Later the patient could be encouraged to acquire and maintain a regular bowel habit of once or twice a day.

Application of local anesthetic cream or gel may help avoid the torture experienced in passage of stools in the patients with acute fissures. Ointments containing opiates, xylocain, amethocain, and cinchocain to relieve pain, belladonna to alleviate sphincter spasm and silver nitrate to promote healing have been in vogue since long. These mixtures are introduced on the finger or a short rectal bogie to ensure a thorough application over the desired part of the fissure<sup>4</sup>. The modern practice is to insert the ointment over an anal dilator, which in addition helps relieve sphincter spasm. The possible complications of this treatment include pruritus due to allergy with the anesthetic agents and loss of anal dilator in the rectum<sup>5</sup>.

Chronic or complicated fissure in ano- The above mentioned approaches do not prove effective in the chronic variety of fissures in ano. These chronic or complicated fissures are not amicable to the aforesaid simple conservative line of treatment. A definitive therapy is needed to tackle this stubborn malady. The fissure is labeled as chronic or complicated if it fulfils the following criteria<sup>6</sup>.

1. If not responding to conservative treatment.
2. If a fibrous anal polyp is present.
3. Presence of an external skin tag is noticed.
4. Presence of hemorrhoid is visible.
5. Induration is indicated at the edges of fissure.
6. If there is exposure of the fibers of the internal sphincter at the floor of the fissure.
7. The base of fissure is infected.
8. A bridged fissure with underlying fistula [a post fissure fistula] is diagnosed.

It has been experienced that fissure, complicated by any of the above factors, neither heal spontaneously nor does it respond to conservative therapy<sup>7</sup>.

## Discussion:

Various therapies advocated for treating these chronic fissures and which are presently in practice have been summed up in the following paragraphs. Such proven therapies may be grouped into non-operative and operative maneuvers.

### ***Non-operative techniques:***

**1] Injection of Botulin Toxin-** Botulin toxin is known to cause paresis of the sphincter and thus 20 Units of type A botulinum toxin [Botox] diluted to 50 U/ml is injected bilaterally to the fissure. The toxin exerts its effects on the acetylcholine releasing parasympathetic peripheral nerve endings as well as the ganglionic nerve endings, thereby leading to flaccid paralysis of the internal sphincter. This causes sphincter paresis for about 3 months, a period which is sufficient for healing of a chronic non-complicated [not associated with sentinel tag, internal hemorrhoids, anal polyps or post fissure fistula] fissure<sup>8</sup>.

It is well tolerated and can be administered on an outpatient basis. The healing rate reported is about 79%.

Drawback- The toxicity of the drug, accidental injection in the surrounding tissue amounting to general poisoning, haematoma and infection reported had discouraged regular use of this therapy<sup>9</sup>.

**2] Oral Nifedipine-** Nifedipine is an L-type calcium channel antagonist. L-type calcium channels are the principal calcium channels in the GI smooth muscles. It has been used with variable effects in the management of achalasia cardia. In the treatment of anal

fissures, 20 mg of Nifedipine is given twice daily. Nifedipine is found effective in relieving the sphincter spasm<sup>10</sup>. It is known for achieving increase in the local blood supply by an independent mechanism. This allows faster healing.

Drawback- It is, however, supposed to cause reversible internal anal sphincterolysis. Most of these drugs have a short duration of action and need to be administered 2-3 times daily. Similarly, side effects like headache, palpitations, flushing, dizziness, colicky abdominal pain; ankle edema, reduced taste and smell, nausea and diplopia have been reported.

### **3] Local application of vasodilators—**

Nitric oxide is an important neurotransmitter mediating internal anal sphincter relaxation. It has been proved that chronic anal fissure is ischemic in origin due to poor blood supply and spasm of internal anal sphincter.

Nitric oxide donors such as glyceril trinitrate [GTN] or isosorbid dinitrate are known to cause a chemical sphincterotomy leading to healing of fissure<sup>11</sup>.

A 2%GTN ointment applied twice to the anoderm for 6 weeks results in a complete healing in 98% of patients<sup>12</sup>. A few patients do experience mild headache during therapy.

In another study, topical diltiazem ointment was used as an agent for chemical sphincterotomy for chronic anal fissure. The Study claims to offer significant healing rate and reduced incidences of side effects<sup>13</sup>.

Drawbacks- However, during the course of therapy, strict dietary restrictions to smoothen the stool are necessary. Headache during therapy is a major concern with the incidence as high as 20- 100%. Though the application of GTN has a high healing rate; it

also has a high recurrence rate.

**4] Direct current probe treatment-** This method is tried in patients of chronic anal fissures with associated internal hemorrhoids. A study claimed that when the DC probe [Ultroid, Homeron] was applied to the internal hemorrhoids, the patients were relieved of anal pain and healing occurred in 90% of patients<sup>14</sup>.

Drawbacks- However, this mode of treatment requires special equipment and the procedure takes a very long time to be performed [about 10minutes for each hemorrhoid]. Moreover, the mechanism of action on the part of fissure is also not understood. A case of complication in the form of perianal abscess and fistula requiring surgery has been reported following DC probe treatment<sup>15</sup>.

**5] Endoscopic anal dilatation-** In this procedure, anal dilatation is performed with a two-valved anoscope under local anesthesia as an office procedure<sup>16</sup>. *In the study, 93% patients were found symptom-free one month after the procedure, and only a few had a recurrence.*

This procedure is said to be free of discharge or defect of continence either transient or permanent. In another series, a Parks' retractor or a recto sigmoid balloon has been used for sphincter dilatation. Out of 495 patients treated through this procedure, it is reported that in as many as 87- 88% of the patients, the fissures were healed within 3 months<sup>17</sup>.

Drawback- As many references are not available in support of this technique, it will be hazardous to comment on the efficacy or otherwise of this procedure.

**6] Chemical cauterization-** This is done by using silver nitrate or phenol-in-glycerine. This procedure may be repeated a couple of times until healing occur. It takes about 4 to 8 weeks for complete healing of the fissure. Drawbacks- The toxicity of the drugs, accidental injection in the surrounding tissue amounting to general poisoning, hematoma and infection reported refrained the surgeons from regularly resorting to this method.

#### ***Operative techniques***

**7] Stretching of anal sphincter [Lord's anal dilatation]** - Anal dilation was described by Recamier in 1838. This was one of the most favored and accepted methods of treating the anal fissures<sup>18</sup>. The primary cause of attraction for the procedure is its extreme simplicity. Since almost no instruments are needed for this procedure, it could be performed at the primary health centers or inadequately equipped hospitals situated at small townships.

Anal dilatation helps in healing of the fissure by reducing the anal canal pressure. If performed with due care by avoiding excessive manipulation, it does not cause any damage to the external anal sphincter as feared. In experienced hands, incontinence of stools or flatus is seldom seen<sup>19</sup>.

Drawback- However, recent studies have shown that anal dilation has a higher risk of fissure persistence and higher risk of incontinence<sup>20</sup>. Although the procedure in itself is curative, in cases with associated pathologies, it has to be supplemented with an additional procedure.

**8] Excision of the anal fissure [fissurectomy]** - A triangular part of the anoderm is excised along with the fissure

itself. This procedure is usually preceded by anal stretch.

Drawback- Howsoever, good and reliable this operation is, it leaves behind a large and rather uncomfortable external wound, which takes a long time to heal<sup>20</sup>.

**9] Fissurectomy with immediate skin grafting-** To expedite healing and shorten the convalescence, application of a split thickness graft to the wound is advocated by a section of the proctologists.

Drawbacks- The procedure is a time consuming, rather finicky one. It needs a hospital stay of about a week to keep patients bowel held up to avoid possible detachment of the graft. Precisely, for these reasons, the procedure could not get enough acclamation and acceptance.

**10] Division of internal anal sphincter-** Division of internal sphincter fibers to relieve the sphincter spasm is presently considered the preferred therapy for chronic, recurrent and non-healing fissures<sup>21</sup>.

*Two techniques have been described:*

**A. Open posterior internal sphincterotomy.** Posterior sphincterotomy is done by dividing the sphincter fibers through the fissure wound.

Drawbacks- The wound is slow to heal and has a tendency to lead to a posterior midline keyhole defect that may cause a persistent seepage or difficulty in continence.

**B. Lateral subcutaneous internal sphincterotomy.** It is one of the most favored procedures. The reasons for this are the simplicity of the procedure, minimal anesthesia requirements, and good results. The lists of complications that can arise due to the procedure are formidable; but with

Careful and experienced hands these could be effectively handled and the procedure could be made safe and simple<sup>22</sup>.

Drawbacks- The most common complications encountered are bleeding needing hospitalization, abscess and fistula formation, incontinence to flatus and feces, and recurrence.

Both the procedures can be done either under a local or a general anesthesia depending upon personal preference of the surgeon based on his experience and the attitude of the patient.

**11] Combined outpatient surgical and cyrotherapeutical treatment-** A lateral anal sphincterotomy, which is done under local anesthesia, is followed by fissure curettage with N protosside cryosound<sup>23</sup>. This is claimed to be a quicker and more effective procedure.

Drawback- The additional maneuver is not found to be of any specific advantage and so it has not found many takers.

**12] Carbon dioxide laser surgery-** It involves laser vaporization of the fissure locally. The internal sphincter can be incised using this laser. In long-standing fissures, some degree of anal stenosis is present. It can be used to give relieving incisions in the three quadrants other than the fissure before the fissure is attended.

Drawbacks- The high cost of the laser unit seems to be the major deterrent in its wider acceptance.

**13] Lateral subcutaneous internal sphincterotomy and radio frequency surgery-** In an attempt to improve on the available options, a fusion of method of sphincterotomy with radiofrequency is

described. The procedure has been claimed to be effective in cases where the fissure is associated with pathologies like sentinel tags, hypertrophied anal papillae, fibrous polyps, post fissure fistula or internal hemorrhoids which can be tackled simultaneously while the fissure is being treated<sup>24-25</sup>.

The radio frequency surgical unit used is Ellman Dual Frequency 4MHz by Ellman International [Hewlett, NY], which incorporates threefold function of cutting, cutting and coagulation or pure coagulation.

It is claimed that the edges of the fibrosed fissure can be refashioned with the help of the radio frequency surgery. The entire procedure is quick and is virtually bloodless<sup>26</sup>.

Drawbacks- Being a new introduction with no controlled or randomized trials available, this treatment modality needs further studies to analyze long-term results.

## Conclusion:

Revisiting the trends of treatment of chronic anal fissures, it can be concluded that conservative treatments with nitroglycerine, botulin toxin, and oral nifedipine are all effective methods that may reduce the need for anesthesia and surgery in many of the patients. These could always be offered to the patients who are not willing for operative procedure. Surgical manipulation should be sought in case of recurrence or failure of conservative treatment.

While all the available options are explained to the patient with complete information about the method, cure rates, complications, and reversibility of the disease, the surgeon should analyze the optimum treatment for the particular patient in order to make a good and safe choice and then offer the patient the result of the best of judgment of his own.

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